Comment and Response Table for San Diego County Model SUSMP Update
Changes Made for the 2 January 2009 Version Noted in Italics

Comment	Response
Comments Submitted by NRDC/Coastkeeper	
I. Alternative Treatment Facilities	
The Model SUSMP on page 62 mentions that alternative treatment facilities are limited to certain circumstances and selection criteria, but this is an inadequate statement because there is no such discussion on the cross-referenced page 30, and the rest of the document does not identify any particular circumstances necessitating – or criteria for – alternative treatment options. It is critical that the Model SUSMP set forth specific and appropriate requirements for alternative compliance because this currently vague exception could become a massive loophole and defeat meaningful implementation of LID. Any alternative compliance options allowed by the Model SUSMP should ensure equivalent results in stormwater pollution reduction, and the process for determining the applicability of alternative compliance provisions should be clearly outlined.	The page reference in the Model SUSMP is in error. It should have been page 23, not page 30. See the section "Selection of Stormwater Treatment Facilities." *Corrected.*
The Model SUSMP should also be revised to include restrictive criteria for ensuring that alternative compliance is allowed only in situations of true infeasibility.	Decisions about the infeasibility of using LID facilities are made project-by-project by the individual Co-permittees. The Model SUSMP provides detailed guidance identifying project types that present special challenges to implementing LID (see p. 25) and a process for evaluating alternatives. *Section on waivers in Chapter 1 has been revised per follow-up discussion with NRDC/Coastkeeper.*
II. Water Harvesting and Reuse	
Throughout the Model SUSMP, water harvesting and reuse techniques receive scant attention and are inadequately described. Their potential for reducing stormwater runoff and pollutant loading, however, especially in areas with high impervious cover and/or significant concentrations of non-infiltrative soils, is enormous and should be highlighted. Overall, the Model SUSMP	Water harvesting and reuse goes beyond the mandate of the NPDES permit, and it may not be possible to incorporate development of standards, drawings, criteria, and specifications for water harvesting and reuse within the SUSMP. General ideas, examples, and references regarding water

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should mention such techniques much more frequently and emphasize their many beneficial applications in San Diego County.	harvesting and reuse can be added to the SUSMP. *Added to Chapter Four.*
Besides the Model SUSMP's general failure to promote water harvesting and reuse practices, the Model SUSMP's existing treatment of water harvesting is insufficient in two principal respects. First, the document provides specifications and drawings for relatively small-scale cisterns, neglecting the applicability of larger-scale water storage structures for larger buildings and developments. (See, e.g., Model SUSMP at 89-91). Examples like the King Street Center and Santa Monica Public Library, described below, demonstrate how stormwater runoff can be reduced very effectively through the use of water harvesting at sizeable sites. The Model SUSMP's criteria do not preclude the large-scale application of water harvesting, but the Model SUSMP does not indicate that such application is possible. This deficiency could be remedied by describing and providing drawings for (or at least examples of) larger cistern systems.	The cistern drawing on page 91 shows no scale. The required minimum cistern size is determined by the calculation specified in Equation 4-8, which is applicable to small and large systems.
Second, the document entirely neglects the possibility of designing water harvesting systems to reuse stormwater onsite and thereby significantly recue or even eliminate stormwater pollutant loading and offsite runoff. Many developers have installed rainwater recycling systems of this sort at various building scales. Santa Monica Public Library's main branch, for example, contains an underground reservoir that collects rainwater and can store 200,000 gallons for later reuse on the Library's landscaped areas. The King Street Center in downtown Seattle uses water captured from roof runoff to supply over 60 percent of the building's landscape irrigation and toilet flushing needs, saving approximately 1.4 million gallons of potable water per year. On a much smaller scale, NRDC's Southern California office drains roof runoff into two 1500-gallon cisterns that help us reduce our building's water	The NPDES permit does not mention water harvesting and reuse as an option for compliance. Also, and unfortunately, the stringent NPDES permit requirements for treatment and flow control severely constrain options for creating multiple-use facilities. The commenter may be underestimating the complexity and expense of designing, building, and operating reliable systems that will meet the stringent NPDES criteria for treatment and flow control and also provide water harvesting. The model SUSMP can incorporate mention the potential for water harvesting and reuse and refer the user to municipal staff for further information on local requirements. *Mention added to Chapter Four and Cistern Design Sheet.*

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consumption by about 60 percent through a graywater recycling system. The Carkeek Environmental Learning Center in Seattle similarly drains roof runoff into a 3500-gallon cistern for toilets. Even single-family homes can recycle graywater or, for far less cost, connect rain barrels to garden watering systems.	
The Model SUSMP's failure to describe water reuse opportunities is most apparent in the Design Sheets portion of Chapter 4, where the Model SUSMP provides detailed specifications for LID designs, including a "Cistern with Bioretention Facility," but does not mention the possibility of combining a cistern with a graywater recycling and/or landscape irrigation system. Instead, the design specifications state that "[a] cistern in series with a bioretention facility can meet treatment requirements where space is limited," and the Model SUSMP implies that this combination is the only suitable method for reducing polluted runoff (Model SUSMP at 89). However, for two reasons, a cistern linked to a graywater recycling system can function better in the dense urban areas for which the cistern-with-bioretention combination is apparently intended: (1) graywater recycling systems do not require the same landscaped areas as other LID practices and can be contained within structures, thus making them especially amenable to high-density/vertical developments and locations with high groundwater tables where other LID practices may be difficult to implement; and (2) cisterns linked to graywater recycling systems remove potential runoff from contact with any surface that could conceivably drain to receiving waters without adequate treatment.	The Model SUSMP could include mention of graywater recycling systems as a potential adjunct to the use of cisterns-plus-bioretention facilities for treatment and flow control. Implementation of graywater recycling would be subject to local requirements for approval, construction, operation, and maintenance of graywater facilities. *Included in concept in Chapter Four but avoided the use of the term "graywater" because it is easily confused with recycling of washwaters.*
For the preceding reasons, the Model SUSMP should be revised to place more emphasis on combining rainwater storage devices with onsite reuse systems. This requires adding specifications (or at least descriptions) for connecting cisterns to water reuse systems and not only to bioretention facilities. To this end, the Design Sheet on pages 89 to 91 should detail both such uses of harvested	Onsite reuse is a potential enhancement to facilities designed primarily for treatment and runoff control. However, implementation of onsite reuse systems goes beyond the mandate of the NPDES permit. General ideas, examples, and references regarding water harvesting and reuse can be added to the SUSMP. *Added to Chapter Four.*

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rainwater, and all references to this Design Sheet should indicate that water reuse is a viable option, in addition to bioretention. The Model SUSMP should also mention specifically that in areas with high concentrations of non-infiltrative soils, adopting stormwater capture and reuse designs enables developments to reduce or even eliminate polluted stormwater runoff. Such references could be inserted, for example, on page 36 (the description of soil types should mention that onsite water reuse is an option where soils are not amenable to infiltration), page 46 (stormwater capture and reuse should be listed within one of the "four LID strategies" for managing runoff), page 47 (Table 4.1 should describe a "stormwater capture and reuse system"), pages 48 to 51 (stormwater capture and reuse systems should be included in the analysis of optimizing site layout), and pages 51 to 60 (Capture and reuse systems should be described and accounted for in the section on developing and documenting drainage design).	
Table 2-1	
Based on our research and experience, virtually all urban runoff contains elevated levels of heavy metals, bacteria, and viruses, regardless of its source. We feel it is particularly unjustifiable to omit heavy metals from commercial land use and bacteria and viruses from streets, highways, and freeways. Additionally, runoff from landscaping generally contains pesticides, and restaurants and roadways often include landscaping. The table is missing an explanation of what the numerals 1 to 5 and letters "P" and "X" mean.	The footnotes were inadvertently left off the table. "X"s can be added where suggested. As noted on page 23, except in rare circumstances, the use of the LID Design Guide and Pollutant Sources/Source Control Checklist will ensure specific projects comply with all stormwater requirements. *Added as noted.*
Table 2-3	
We believe that dry ponds should not be rated "high" in any category of pollutant removal and that media filters should not be rated "high" for fine particles. Bioretention units can be "high" for removing dissolved pollutants if they infiltrate or evapotranspirate all or the vast majority of runoff. We are not sure what the table	Settling basins (dry ponds) are generally regarded as effective in removing fine sediments if they are properly designed. Available data on performance of facilities tends to back this view. Although bioretention facilities can sometimes infiltrate or evapotranspirate most runoff, their overall application in San

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means by "high-rate" biofilter or media filter, and these should be more concretely defined in order to distinguish them from standard biofilters and media filters.	Diego County will be in clay soils with limited surface area, in which case underdrain flows will carry some dissolved pollutants. Table 2-3 can include a cross-reference to the list on page 26 and make it more clear that "higher rate" (rather than "high-rate") filters and biofilters are those with a surface loading rate much greater than the 5 inches per hour design criterion. *Cross reference added.*
Proprietary Devices	
The Model SUSMP leaves the status of proprietary devices too loose and ill-defined. On page 26, the Model SUSMP simply directs developers to "[c]onsult with municipal staff before proposing these devices." Rather than providing such vague guidance, the Model SUSMP could list proprietary devices that have been shown – by rigorous, independent testing – to meet the objectives of municipally approved practices, if any such devices exist. This exercise would involve some research and coordination and would likely not lead to much benefit, so recommend instead that the Model SUSMP limit the use of proprietary devices to pretreatment alone, unless a proponent submits complete documentation proving that a selected device can meet the objectives of the Permit and Model SUSMP.	The section on the "Selection of Stormwater Treatment Facilities," beginning on page 23, includes criteria to ensure the use of the most effective treatment facilities practicable on a given project. The mention of proprietary devices on page 26 is intended to direct applicants to check with municipal staff and not rely on the representation of company sales representatives regarding the acceptability of their product to meet NPDES and local requirements.
Rational Method	
On page 27, the Model SUSMP describes the rational method as the means of calculating peak runoff flow and total runoff volume. However, the rational method is a very poor basis for the design of flow-through systems. Although computerized continuous simulation hydrologic modeling may not be financially feasible everywhere, there are better methods (e.g., the Santa Barbara Urban Hydrograph).	The rational method is mentioned on page 27 only to illustrate the relationship between imperviousness and peak runoff flow. The NPDES permit specifies the rainfall intensity to be used in calculating runoff flows for flow-based treatment controls.
Limitations on Infiltration	
The Model SUSMP (pages 30 to 31) perpetuates limitations on infiltration that hydrologists have questioned for years, specifically	The section "Criteria for Infiltration Devices" reflects the restrictions of the NPDES Permit section "Infiltration and

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the notions that certain land uses should not be allowed to infiltrate stormwater and that there must be a 10-foot minimum spacing to seasonal high groundwater. Such blanket statements take no account of site-specific hydrogeologic factors. The key factors are the depth and characteristics of the soil medium before it reaches groundwater. Regarding land uses, a recent study of six sites in Southern California has shown that, in most cases, all land uses – even polluted industrial facilities – can safely infiltrate stormwater without polluting local groundwater supplies. Regarding the issue of spacing, the infiltration facility is safe if there are reliable, site-specific data demonstrating that the seasonal high water table approaches no closer than four feet. Ultimately, these limitations matter much less in this context than they have in other contexts because the Model SUSMP defines many LID designs as non-infiltration-based and therefore not subject to the land use and spacing restrictions, but we believe that the Model SUSMP should, nevertheless, reflect the current understanding of limitations on infiltration.	Groundwater Protection."
Soils and Hydrogeological Information	
Chapter 3, particularly Steps 1 and 2 (pages 35 to 37), fails to place enough emphasis on obtaining thorough, site-specific soils and hydrogeological information as a basis for selecting and designing LID features. The City of Santa Barbara's *Post-Construction Stormwater Best Management Practices (BMP) Manual*, Chapter 3, provides an excellent reference for soil and infiltration assessment, as well as for other stormwater management issues.	The referenced material includes typical procedures, which can also be found elsewhere, for measuring infiltration rates of soils. The Model SUSMP guides applicants to lay out the site to: "Concentrate development on portions of the site with less permeable soils, and preserve areas that can promote infiltration," as well as minimizing grading, preserving vegetation, and setting back development from creeks, wetlands, and riparian habitats. In practice, most small development and redevelopment sites have been previously graded and compacted, or are to be graded and compacted in connection with the project. The Model SUSMP emphasizes the use of underdrained bioretention facilities and planter boxes. These facilities work by allowing infiltration to occur, but also

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	ensuring remaining runoff is detained and treated prior to outflow via the underdrain. This approach ensures compliance with NPDES treatment and flow-control requirements using conservative assumptions about how much infiltration will actually occur.
"Self-Retaining" and "Self-Treating" Areas	
The Model SUSMP characterizes turf, gravel, and vegetated roofs as "self-retaining," which is defined as retaining the first one inch of rainfall without producing any runoff (Model SUSMP at page 53). We agree that under such conditions, turf and vegetated roofs could be "self-retaining." However, the "Analyze Your Project for LID" section on page 46 should cross-reference the definition of "self-retaining" so that its meaning is clear in this context. Additionally, turf and vegetated roofs must be properly designed, constructed, operated, and maintained in order to be and to remain self-retaining. The Model SUSMP needs tighter specifications in this respect – although Chapter 5 discusses operation and maintenance requirements, it includes no detail regarding specific LID features. Gravel, on the other hand, tends to become highly compacted with any substantial weight loading, and thus no gravel area with vehicle traffic would remain self-retaining unless it were excavated an replaced periodically, which would likely not be economically feasible for many property owners.	A note can be added on page 46 to cross-reference the explanation of "self-retaining" on page 53. *Added.* Maintenance fact sheets have yet to be prepared and added to the Project Clean Water web site. For green roofs, maintenance recommendations will defer to the manufacturer's or installer's instructions. If properly designed and installed, gravel (crushed aggregate) retains its permeability when compacted. In general, a gravel section properly designed to withstand vehicle loading will be more than 2.5 inches deep and will retain more than an inch of rainfall. Among the Copermittees, current policies vary regarding verification of operation and maintenance of stormwater management features that are not treatment facilities (for example, reducing runoff by limiting paved area and using permeable pavements, as opposed to treatment facilities such as bioretention areas and sand filters). This variation in policy will be noted in the forthcoming model SUSMP, and Copermittees will discuss whether it is possible to develop more consistent policies to be incorporated in a future revision to the SUSMP. *Variation in policy noted in the introductory paragraph in Chapter Five.*
The "self-treating" concept (page 52) is more problematic than the	Criteria for self-treating areas are provided on pages 65-66. A

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"self-retaining" concept because the Model SUSMP provides no criteria for ensuring that "self-treating" areas will result in pollution reduction equivalent to retaining the first one inch of rainfall, as required for "self-retaining" areas. In fact, the description of "self-treating" areas includes no specification at all, and thus there is nothing to guide developers in deciding what qualifies as a self-treating area and how well that area must perform in mitigating stormwater pollution and runoff. To ensure the desired (and legally required) benefits of LID implementation, the Model SUSMP should include design criteria for self-treating areas akin to the design criteria for self-retaining areas.	cross-reference can be added to page 52. *Cross-reference added.* The concept of self-treating area is important to LID design and implementation. Drainage from roofed and paved areas needs to be routed through treatment and flow-control facilities such as bioretention, but drainage from pervious landscaped areas does not need to be so managed if it is kept separate.
Runoff Factors	
In Table 4-2, it does not make sense that amended, mulched soil and landscaping should both have runoff factors of 0.1. Landscaping can be on poor, highly compacted soil and thus generate significantly more runoff than properly amended, mulched soil. These factors probably result from the rational method and incorporate its over-simplicity.	The runoff factors are specific for surfaces draining to treatment facilities. These facilities are designed to handle runoff from small storms, in which case the 0.1 runoff factor is appropriate for landscape generally. When the SUSMP is updated to incorporate flow-control (HMP) requirements, which address larger storms as well as small storms, it may be necessary to develop separate runoff factors for different types of soils.
Underdrains	
Although the Model SUSMP would require underdrains on Group "C" soils (page 74), Group "C" soils do not always necessitate underdrains for two reasons: 1) site-specific soils are frequently very different from the soils shown on soil classification maps; and 2) bioretention systems with properly constructed, amended soils have performed well on ostensibly C soils. This problem highlights the lack of appropriate soil and hydrogeological information-gathering requirements identified above.	Underdrains are recommended for facilities built on "C" soils to ensure against standing water, which could result in boggy conditions and mosquito harborage. If infiltration to native soils turns out to be at a higher rate, the underdrains will simply flow less often.
Comments Submitted by the San Diego Regional Water Quality Control Board	
1. The Draft does not emphasize avoidance of receiving waters,	The language in Section E.10 of the NPDES Permit can be

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nor does it explicitly prohibit the use of receiving waters for urban runoff treatment. Section E.10 of the MS4 permit provides that "[u]rban runoff treatment and/or mitigation must occur prior to the discharge of urban runoff into a receiving water." The draft should be modified accordingly, to reflect this requirement.	added to the SUSMP. *Added.*
2. Maintenance of treatment control BMPs is not specified in the Draft. Sections D.1.d(6)(d) and D.1.e(2)(d) of the MS4 permit require the Copermittees to ensure approved treatment control BMPs are effectively operated and maintained by a responsible party. The Draft should be modified to incorporate these requirements.	See Chapter 5, beginning on page 93 of the SUSMP.
3. The Copermittees use the word "may" throughout the Draft when a requirement is needed for compliance with the MS4 permit. For example, on page 40, the "municipality may require that the applicant submit financial assurances, acceptance of responsibility, and an outline of general maintenance or a detailed maintenance plan and schedule." In this instance the Regional Board considers assurances and plans as necessary to evaluate compliance with the MS4 permit. The Draft should clearly identify that actions mandated for MS4 permit compliance are required actions that "must" be done.	The section on page 40 will be edited to clarify what is required by the permit, what options the Copermittees may use to meet those requirements, and the options regarding the form and timing of submittal requirements different Copermittees may choose to employ. The draft will be reviewed for other instances where these distinctions can be clarified. *Section edited as described.*
4. The Priority Development Projects listed on Table 1-1 of the Draft need to be modified to include pollutant generating projects that result in the disturbance of one acre or more of land (within three years of the adoption of the MS4 permit), as required by Section D.1.d.(1)(b) of the MS4 permit.	As the permit section cited notes, the Copermittees may collectively identify a different threshold. This can be addressed in an update to the model SUSMP or a revised SUSMP to be published by January 2010.
5. Additionally, Table 1-1, Section I, should be clarified to include driveways in addition to "streets, roads, highways, and freeways."	Table 1-1 reflects the language in the NPDES permit.
6. The text on page 4 states, "See Selection of Treatment Facilities on page 30." However, page 30 does not include the reference title or related information. It appears that reference is incorrect and should refer the reader to page 23, "Selection of Stormwater	The reference will be corrected. *Corrected.*

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Treatment Facilities."	
7. The hydromodification management exemption conditions on page 12 are taken from Section D.1.g.(3) of the MS4 permit. In number 3, modify "watershed" to "sub-watersheds" and include the language "and the potential for single project and/or cumulative impacts is minimal." Modifying the text in this manner will make the Draft consistent with the MS4 permit, and will help clarify which locations apply.	This language can be added. *Added.*
8. The hydromodification management exemption conditions should also include the final sentence of Section D.1.g.(3) of the MS4 permit, which states "[h]owever, plans to restore a channel reach may re-introduce the applicability of HMP controls, and would need to be addressed in the HMP." The inclusion of this language will clarify when the exemption applies, and prompt the applicant and the Copermittees to investigate channel restoration activities that are planned or in progress, to apply HMP controls accordingly.	This language can be added. *Added.*
9. Table 2-1, on page 21 does not define the variables used inside the table. Definition of the variables P, X, P(1), P(2), P(3), P(5), X(4), and X(4)(5) is needed to understand the table.	The footnotes were inadvertently omitted and can be restored. As noted on page 23, except in rare circumstances, the use of the LID Design Guide and Pollutant Sources/Source Control Checklist will ensure specific projects comply with all stormwater requirements. *Corrected as noted.*
10. Also in Table 2-1, the Copermittees should consider inclusion of heavy metals from commercial land uses; bacteria and viruses from streets, highways and freeways; and pesticides from restaurant landscaping. The rationale and selection process should be evident to ensure that all anticipated and potential pollutants by land use are being addressed.	"X"s can be added where suggested. *Added, except noted the potential for pesticides is related to whether or not landscaping is part of the project.*
11. Page 45 instructs the reader to analyze their project and select options for implementing LID techniques to "meet runoff treatment	At present flow-control requirements apply only to projects 50 acres and larger. SUSMP references to flow control

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requirements-and flow control requirements; if they apply." Modification of the language from "if they apply" to "unless exempted", and referencing the page where the exemptions and criteria are located (e.g. page 12) will emphasize that LID techniques always apply unless the specific criteria for exemption are met.	requirements will be updated following approval of the HMP by the Regional Water Board.
12. The numbered list on page 48 indicates the order of impacting and conserving natural areas. This list does not take into account that nunlber 2 can occur in areas that may be delineated as wetlands and may also be the habitat of sensitive species. For clarification, number 2 should be modified to include "where receiving waters are not present."	The language can be added. *Added.*
13. The last bullet on page 50 states: "Planter boxes and bioretention areas must be level or nearly level all the way around." Modification of the language to remove "or nearly level" will add consistency to the level requirement found on page 41 for the top edge of bioretention facilities.	As a practical matter, the top edge needs only be nearly level. There needs to be some flexibility in design criteria. As noted, swales may be gently sloped in the linear direction. Bioretention areas may also be gently sloped in the direction of flow.
14. The title of Step 7 in Chapter 4, page 59 states: "Determine If Available Space For IMP Is Adequate." Modification of the language to change "If" to "Where" will add emphasis that space cannot be a limiting factor in determining the type of treatment facilities to be utilized. As stated on page 25, "lack of space, in itself, is not a suitable justification for using a less-effective treatment on a development site... "	The design process involves developing a site plan with IMPs, checking to see if the IMP area is sufficient, and iterating until an acceptable plan is achieved. This is detailed in the text.
15. Page 12 contains Option 3: Exemption From Hydromodification Management. Clarification is needed to further define what is covered under a channel that is concrete lined or significantly hardened. It is not clear whether this exemption includes channels that are over 90 percent concrete lined or hardened, but contain earthen banks and/or bottoms in one or more portions. It is also unclear whether this exemption includes channels that have hardened banks in their entirety, but have	As noted in the earlier comment, the language here is taken from permit section D.1.g.(3).

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earthen bottoms in their entirety. As mentioned previously, channels and creeks that have restoration plans will reintroduce the applicability of HMP controls.	
16. Clarification as to what is meant by "wetlands" in column four of Table 2-3 and the third bullet of page 24 is needed. It is anticipated that these wetlands are artificial and/or constructed. Clarification in the table and in the bullet item provides another opportunity to emphasize that receiving waters cannot be used as treatment facilities and that runoff entering those waters must first be treated. Also note that in the title of Table 2-3, the font size of the last four words does not match the all caps format.	The heading can be changed to read "constructed wetlands." *Changed as noted.*
17. A reference for the determination of the effectiveness of the treatment facilities in Table 2-3 on page 24 is needed to understand how each facility received its rating.	See Salvia, Samantha (2000), referenced and hyperlinked in the Bibliography. This reference can be included in a "References and Resources" section that could be added to Chapter 2. *Added*
18. Page 36/37, Step 2: Identify Constraints and Opportunities needs clarification on what is meant by "open space and buffers (which can double as locations for bioretention facilities)." Natural buffers are essential to the health of wetlands and stream corridors and should be avoided as locations for concentrated pollution assimilation. The Draft should either remove reference to buffers altogether, or prioritize opportunities in a manner that would deter applicants from using natural buffers where other opportunities are present.	The text states: "…easements and landscape amenities including open space and buffers (which can double as locations for bioretention facilities)…" The text can be revised to note explicitly that this does not included protected riparian areas. In some cases, setbacks from riparian areas are appropriate locations for bioretention facilities. *Revised as noted.*
19. The adopted TMDL list on page 22 does not include the recently adopted Bacteria TMDL for Beaches and Creeks. The inclusion of this TMDL will provide a more accurate and up to date list of adopted TMDLs in the San Diego area.	The recently adopted TMDL can be added to the list. *Added.*
20. In consideration of San Diego's climate and water shortage, the Draft should promote the use of water harvesting, even when not required, for reuse by providing additional information about existing collection alternatives; both large, and small-scale. Chapter 4 provides an opportunity to expand on these techniques.	The NPDES permit does not mention water harvesting and reuse as an option for compliance. Also, and unfortunately, the stringent NPDES permit requirements for treatment and flow control severely constrain options for creating multiple-use facilities. The model SUSMP could incorporate mention the

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	potential for water harvesting and reuse while noting the difficulties involved and referring the user to municipal staff for further information on local requirements. *Done – Chapter Four and Cistern Fact Sheet.*
21. A definition of high-rate biofilters, referenced in Table 2-3, is not provided in the Draft or the Glossary. Providing a definition of this type of treatment BMP will provide clarity as to what constitutes a high-rate biofilter.	This can be added. As may be clear from the prioritized list on page 26, this refers to a filter with a surface loading rate greater than the criteria provided for bioretention areas and sand or media filters. *Added.*
22. The concept of self-treating areas should be defined in the Glossary.	Self-treating areas are natural, landscaped, or turf areas that drain directly off site or to the public storm drain system. This definition can be added to the glossary. *Added.*
23. The definition of "entire project area", which is bolded and emphasized on page 52, should be included in the Glossary.	The entire project area comprises all areas to be altered or developed by the project, plus any additional areas that drain on to areas to be altered or developed. This definition can be added to the glossary. *Added.*
24. "Proprietary storm water treatment facilities" are not defined in the Glossary or the Draft. A definition of this term would provide clarity.	A proprietary device is one marketed under legal right of the manufacturer. "Proprietary" can be defined in the glossary. *Added.*
25. The Glossary is lacking the definitions of multiple terms used throughout the Draft. Including the aforementioned examples, the Glossary should contain the definitions of all terms in the Draft that are bolded, emphasized, or used frequently in the document in order to provide consistency throughout the document.	In many cases, commonly used terms are bolded for emphasis. If there are additional terms the reviewer believes require further definition, these can be added to the glossary.
Comments Submitted by Vaikko Allen, Contech Stormwater Solutions	
Glossary - Impracticable. Either remove this definition or disclose the "set criteria" referenced. This definition mentions "set criteria" to determine if an onsite treatment facility is infeasible. These criteria are not established in the manual. They should either be established with adequate justification or this phrase should be	Did not find the term "impracticable" in a search of the document.

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removed.	
Glossary - Indirect Infiltration. Remove this term. This is a misleading term. Passage of water through a soil medium and subsequent collection and discharge of that water is more accurately termed filtration. To emphasize the biological component it could also be called biofiltration. The term infiltration is conventionally reserved for water entering soil that is dispersed in the interstitial pore spaces of that soil, and is thereby removed from the storm runoff volume.	Did not find the term "indirect infiltration" in a search of the document.
Glossary – Infiltration Device. Change to " Any BMP that is designed to infiltrate stormwater into the subsurface such that the volume of infiltrated water is prevented from entering a downstream conveyance system or groundwater table prior to travel through at least 10' of soil. Self retaining areas with a drainage area less than 2x the infiltrating area are not considered infiltration devices." The definition given makes a distinction between the "natural groundwater protection" afforded by surface or near-surface soils and subsurface soils. There is no basis given for this distinction. On the contrary, it has been demonstrated that percolation of stormwater through subsurface soil is cleansing and generally results in satisfactory water quality. The final report of the Water Augmentation Study initiated by the Los Angeles and San Gabriel Watershed Council is a good reference on the subject. http://www.lasgrwc.org/WAS/Documents/WAS%20Phase%20II%20Final%20Report%20Summary.pdf	The proposed revised definition seems inconsistent with the requirements in Provision D.1.d.(12) of the permit.
Glossary – Retention. Add "within berms or depressed areas" to the definition after "basins". By the existing definition, bioretention would not be retention. The proposed definition is more consistent with the definition of "Detention."	This language can be added to the definition. *Added.*
Glossary – general. Clarify the role of conventional water quality swale as described in most BMP manuals and the CASQA Handbook for New Development and Redevelopment. The term	A brief discussion of conventional vs. bioretention swales can be added to Chapter 4. Bioretention swales have generally supplanted conventional swales because (1) conventional swale

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swale appears several times in this manual, yet it is not defined. As conventionally designed to convey flow at a depth slightly lower than the vegetation length and with a residence time of 7+ minutes, it appears to have no role. It would not be considered a self treating or self retaining area. It seems that its role would be limited to conveying water to bioretention areas or flow through planters. This should be clarified.	design has resulted in standing water and associated nuisances, (2) conventional swales often don't obtain the required residence time and length because runoff must enter the swale at the upstream end, and (3) a bioretention swale provides more flexible drainage design and more effective treatment within the same footprint. *Discussion added to Chapter Four.*
Page 2, Bullet 2. Change to "Assuming exclusive use of BMPs providing no runoff reduction will be adequate for compliance." To suggest that a BMP is inadequate simply because it is proprietary ignores more relevant factors like its runoff reduction and quality improvement capabilities. Permeable pavements, green roofs and other LID IMPs could be considered to be proprietary and would seem to be discouraged. I assume that the intent here is to get designers to focus on runoff reduction rather than the exclusive use of treatment controls.	The existing language is needed to counter inaccurate information delivered to developers by purveyors of proprietary stormwater treatment facilities. The language is intended to convey to applicants that they should check the salesperson's claims with municipal staff rather than assuming those claims are correct.
Page 7, bold text. Change to "stormwater treatment, detention and infiltration facilities…" I assume that the intent here is to put controls that need maintenance in an area where they can be accessed and are not prone to disruption (regrading, removal, fertilization etc.) by land owners. If so, the same logic should apply to all IMPs and BMPs.	The reviewer may be commenting on a draft previous to the 24 July 2008 submittal. Could not find the referenced language on page 7. The bolded language on p. 9 can be changed to "stormwater treatment, infiltration, and flow-control facilities should not be located on individual single-family residential lots."
Page 11 - Waiver section. Either remove entire paragraph starting "Experience has shown…" or change to "Chapter 4, or other on site BMPs are feasible…" LID BMPs listed in chapter 4 are not the only means of treating stormwater to the MEP. Where LID options are not feasible, alternative treatment controls may be used that provide sufficient treatment to avoid the requirement of a waiver.	(Page 13). The countywide SUSMP reflects the policy that LID facilities are to be used for stormwater treatment wherever feasible. The section "Selection of Stormwater Treatment Facilities," which is referenced here, provides instructions for evaluating the use of other options in specified circumstances where it may be infeasible to implement LID facilities.
Page 14 - Water Quality Regulations section. Check grammar on the fourth bulleted item.	(Page 16). Grammar seems OK, but we are open to suggestions.
Page 15 – Maximum Extent Practicable section. Add "including	This change can be made. *Done.*

Comment	Response
LID facilities, have proven…" This addition is needed to distinguish between structural LID elements and non-structural planning and design elements.	
Page 15 – Maximum Extent Practicable section. This section states: "The NPDES permit includes various standards, including hydrologic criteria, which have been found to comprise maximum extent practicable". Please list these criteria. No performance criteria are given in this section. Instead, manual users are directed to follow the SUSMP design procedures in chapter 4 which include only select LID facilities. This approach does not promote innovation and unnecessarily constricts design options. This section should clarify what runoff reduction and water quality goals must be met for a site to meet the MEP standard. This manual seems to interpret MEP based on whether or not the specific LID framework presented in chapter 4 is followed. This framework may be preferred by the writers of this manual, but there are other methods of controlling runoff volumes and improving water quality that may be preferable to design engineers. This section should make it clear that any option that meets specific performance criteria are acceptable. Such performance criteria may include meeting interim and final hydromodification criteria and providing medium to high reduction in loads of pollutants of concern.	The quoted statement reflects a legal opinion provided to the State Water Board which states the hydraulic sizing criteria for treatment facilities in the NPDES permit constitute "maximum extent practicable."
Page 21 - Table 2-2. This table should be removed and replaced with a unit process based BMP matrix. At least, tables 2-2 and 2-3 should be replaced by table 4.3 from the former SUSMP. This table is far too general. For example, treatment may mean screening, filtration, gravitoidal separation, chemical treatment or biological treatment. This table doesn't distinguish between those unit processes which all have different effects on different pollutants. It also does not differentiate between forms of pollutants. For example, particulate metals and particulate organic	The comment seems to state that particulate pollutants associate with small particles and dissolved pollutants do not. This is self-evident. More to the point is that some stormwater pollutants tend to associate with small particles during treatment. The ability of a process to remove small particles is a good predictor of whether that same process will be effective in removing those pollutants. This is what is conveyed in Table 2-2. As stated elsewhere, the need for this simple analysis is obviated

Comment	Response
matter may be adequately removed by sedimentation or filtration. The dissolved forms of these pollutants may persistent after treatment by those means, but may be removed through chemical and/or biological means. A thorough discussion of a unit process based design approach which would be consistent with the San Diego permit requirements can be found in the 2005 WERF publication "Critical Assessment of Stormwater Treatment and Control Issues" by Strecker et al.	by the requirement to use LID facilities where feasible and by the requirement to implement the source controls in the Appendix. Presentation of a more thorough analysis does not seem warranted.
Page 22 - Table 2-3. This table should be removed and replaced with a matrix that includes various BMPs and their unit process. Or, alternately it can table 2-2 should be removed and replaced by table 4.3 from the previous SUSMP. There are several problems with this table. The treatment facility types are undefined. High, Medium and low performance levels are not defined and there is no documentation of BMPs ability to meet these goals. The last column groups trash racks and hydrodynamic devices (HDS) together which are two fundamentally different processes. HDS units may be sized to have a significant impact on sediment as fine as about 50 microns and associated pollutants. They can also be designed to remove oil and grease with high efficiency. A trash rack has neither of these capabilities.	Tables 2-2 and 2-3 are taken from the updated model SUSMP submitted in January 2008 in accordance with Provisions D.1.d.(7) and (8) of the NPDES permit. Although simple in concept, the tables provide sufficient rationale for the Copermittee's determination regarding the selection of stormwater treatment facilities.
Page 22 - Research and regulatory paragraph. Remove this section. The determination of MEP is to be made on a case by case basis. If there is a performance threshold that has been determined to be less than MEP, it should be noted. It is conceivable that some hydrodynamic separators (HDS) may be suitable where coarse sediment, trash, debris and oil and grease are the only primary pollutants of concern. Effectiveness for these units is primarily a function of sizing, which should be scrutinized. It would be appropriate to say that HDS systems are not suitable for the removal of fine sediment, dissolved pollutants, bacteria, organic compounds etc., however the information in tables 2-2 and 2-3	Again, the reviewer may be referring to an earlier draft of the model SUSMP. It may be conceivable, but seems rather unlikely, that it would be appropriate to discharge urban runoff to receiving waters without consideration of the need to reduce, to the maximum extent practicable, heavy metals and bioaccumulative pollutants.

Comment	Response
should make this point obvious. Especially if these tables are revised to relate unit processes to the various pollutants, it will be clear that HDS units are not adequate stand alone treatment on nearly all sites. Catch basin inserts are a different type of technology from HDS systems that should be treated separately. Some include filters and can be effective at very low loading rates and with very low pollutant loads. However they are rarely sized to operate in this effective range and present an onerous maintenance burden that is rarely met. Based on repeated observations of performance and operational failures, and lack of adequate mainentance, it is more appropriate to categorically reject these BMPs for stand alone use. I am not aware of similar endemic performance and operational failures for HDS units.	
Page 22 - "Underground Vault" paragraph. Remove the sentence: "Because vaults may be "out of sight, out of mind"…. This problem is not unique to underground vaults. A lack of maintenance across all BMP types is observed throughout California and is noted in the 2006 blue ribbon panel report on the feasibility of numeric limits as a primary cause of persistent water quality degradation. New tracking and Reporting criteria in the NPDES permit are designed to address this issue.	The sentence reflects reported experience in Denver, CO, Prince Georges County, MD, and elsewhere. Although the maintenance verification program required by the permit will no doubt reduce the incidence of unmaintained facilities overall, there will still be substantial maintenance verification advantage to having facilities on the surface and visible.
Page 24 – Proprietary Devices note. Change to read "…proprietary treatment devices do not meet…" The recommendation that design engineers consult with municipal staff is not practical since most staff will not review the use of a product without seeing how it will be used on a site. As written, this paragraph would also encourage design engineers to consult with staff where any proprietary device will be used. Some instances where that is not necessary include but are not limited to the use of proprietary infiltration BMPs, alternative paving materials and HDS units as pretreatment for	The existing language is needed to counter inaccurate information delivered to developers by purveyors of proprietary stormwater treatment facilities. The language is intended to convey to applicants that they should check the salesperson's claims with municipal staff rather than assuming those claims are correct.

Comment	Response
landscape based IMPs.	
Page 26 - "The 0.2 inches" paragraph. Details regarding verification of the 5"/hr infiltration rate are needed. Whose responsibility is it to verify that the 5"/hr infiltration rate is met? Is it enough to call for "engineered soil with 5"/hr infiltration capacity" on a set of plans or does that rate have to be measured prior to the completion of the construction phase? Is there a soil infiltration rate inspection protocol that can be referenced? Without requiring some quality control check at some point, a contractor is likely to import soil with unknown chemical and physical properties and compact it to a point where it loses its permittivity. Since the effectiveness of both IMPs currently listed in this manual hinge on this property, it must be verified. Ability to control construction material quality, compaction and proper design should be required where these BMPs are specified.	The reference here is to a maximum design surface loading rate, not an infiltration rate. The commenter is correct that the quality of the soil mix supplied must be subject to verification during construction.
Additional Comments and Responses Developed in a 4 December 2008 Conference Call with NRDC and Coastkeeper including discussion and resolution of comments in the NRDC/Coastkeeper 7 November 2008 letter and attachments.	
On page 13, under the heading "Waivers from Treatment Requirements," change "stormwater treatment requirements" to "numeric sizing requirements" to be consistent with the NPDES permit.	*Change made.*
On page 13, bring forward some of the discussion from Chapter 2 regarding selection of stormwater treatment facilities.	*Discussion on page 13 revised to clarify that applicants should first consider LID, then, in the specified special situations, consider the options listed in Chapter 2.*
Add within the SUSMP a recommendation that municipalities review their codes for possible revisions that would remove barriers to implementing LID.	*Bullet added in Chapter 3, Step 1.*

Exhibit B

California Regional Water Quality Control Board

San Diego Region

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(858) 467-2952 • Fax (858) 571-6972
http:// www.waterboards.ca.gov/sandiego

March 25, 2009

In reply refer to:
Place ID#: 710562
Order Reg Measure ID# 329556
SWU:Ebecker

County of San Diego
Land Development Division
1600 Pacific Highway, Room 212
San Diego, CA 92101

Attn: Chandra L. Wallar
Deputy Chief Administrative Officer

SUBJECT: FINDING OF ADEQUACY FOR THE JANUARY 2, 2009 UPDATED COUNTYWIDE MODEL STANDARD URBAN STORMWATER MITIGATION PLAN (SUSMP) REQUIREMENTS FOR DEVELOPMENT APPLICATIONS

On July 24, 2008, the San Diego Municipal Storm Water Copermittees (Copermittees) submitted an updated Model SUSMP in accordance with Section D.1.d.(8)(b) of California Regional Water Quality Control Board, San Diego Region (Regional Board) Order No. R9-2007-0001 (MS4 Permit). The Model SUSMP defines the minimum Best Management Practices (BMPs) to be incorporated into the Copermittees' priority development projects. In a September 18, 2008 letter, the Regional Board provided comments on the Model SUSMP. The letter also conveyed National Resource Defense Council (NRDC) September 9, 2009 comments on the updated Model SUSMP for the Copermittees to consider and respond to.

The Copermittes resubmitted the Model SUSMP on January 2, 2009 with changes and responses to Regional Board and NRDC comments. The Regional Board has reviewed this updated Model SUSMP and concludes that the Copermittees have adequately addressed relevant comments and that the January 2, 2009 Model SUSMP meets the requirements of the MS4 Permit. Attached to this letter, is NRDC's letter dated February 23, 2009, regarding the January 2, 2009 Model SUSMP. NRDC's additional comments and suggested changes to the Model SUSMP are not reflected in the Model SUSMP, but should be considered by the Copermittees during update of the Copermittees' local SUSMPs.

Prior to March 25, 2010, each Copermittee shall update their local SUSMP to implement the updated requirements in accordance with the MS4 Permit Section D.1.d.(8)(c).

If you have any questions regarding the above, please contact Eric Becker by e-mail at ebecker@waterboards.ca.gov or by phone at (858) 492-1785.

Respectfully,

JOHN H. ROBERTUS
Executive Officer

Attachment: NRDC February 23, 2009 Letter

CC: National Resource Defense Council
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Attention: Bart Lounsbury

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NRDC
THE EARTH'S BEST DEFENSE

SAN DIEGO
COASTKEEPER

February 23, 2009

Mr. John Robertus
Executive Officer
San Diego Regional Water Quality Control Board
9174 Sky Park Court, Suite 100
San Diego, CA 92123-4340

Re: Incorporating a Numeric Performance Standard into the Model SUSMP for San Diego County

Dear Mr. Robertus:

The Natural Resources Defense Council and San Diego Coastkeeper have participated extensively in the 2006-2007 San Diego MS4 permitting process. Thereafter, we have commented on, and sponsored expert technical review of, subsequent proceedings required by the Permit to revise the Model SUSMP. Both before and after Permit adoption, NRDC and Coastkeeper have consistently raised concerns about the lack of clear standards for the implementation of post-construction stormwater management BMPs in general and low impact development ("LID") practices in particular. Unfortunately, we remain extremely concerned that the Model SUSMP, while overall a useful guidance document, fails to specify the necessary performance criteria to ensure that stormwater pollution is, in fact, reduced to the Clean Water Act's "maximum extent practicable" ("MEP") standard.

In January 2007, we submitted comments on the second revised Tentative Order and noted its problematic failure to include specific, numeric performance requirements. In February 2007, we petitioned the State Board to overturn the approval of the San Diego MS4 Permit ("Permit") in large part because of the aforementioned problem. We held our petition in abeyance, however, with the understanding that the Model SUSMP revision process would address our concerns. In April and September 2008, during the drafting of the Model SUSMP, we submitted letters to the County of San Diego and to the Regional Board reiterating the need for specific, numeric performance requirements. We believe, though, that the most recent draft of the Model SUSMP does not adequately set forth such requirements but that, with a few small revisions, it could be brought into line with the MEP standard and with other stormwater regulations around the country. We have detailed these revisions below and urge you to require the County to revise the Model SUSMP accordingly.

I. The Model SUSMP Must Compensate for the Lack of Clear Performance Standards in the Permit and Implement Its Mandate to Maximize LID by Requiring a Robust Numeric Performance Standard for Low Impact Development.

There is an emergent consensus nationwide that LID practices are the most effective stormwater management techniques, besides providing many other benefits, such as reducing the need for imported water, increasing property values, mitigating the urban heat island effect, and creating aesthetically pleasing landscapes. In California, the Ocean Protection Council, for instance, strongly endorsed LID last year by "resolv[ing] to promote the policy that new developments and redevelopments should be designed consistent with LID principles" because "LID is a practicable and superior approach ... to minimize and mitigate increases in runoff and runoff pollutants and the resulting impacts on downstream uses, coastal resources and communities."[1] EPA has also called upon Regional Boards across California to prioritize the implementation of LID, even "recommend[ing] that the [South Orange County draft] permit be revised to put more emphasis on LID [and to] require that LID be woven into the design of specified new development and redevelopment projects."[2] In other MS4 permit contexts, EPA has also specifically endorsed the use of metrics, particularly the EIA approach that NRDC advocated for the San Diego Permit.

It is becoming clear that without requiring the implementation of LID practices designed to satisfy feasible and clear metrics, stormwater permits cannot meet the Clean Water Act's "maximum extent practicable" ("MEP") standard for pollution reduction. Critically, the prioritization of LID practices is insufficient by itself to meet the MEP standard and *must* be paired with a measurable requirement for the implementation of LID. We outlined very similar concerns during the approval process for the South Orange County MS4 Permit, which was rejected by the Regional Board in part because it contained much of the same vague language as the San Diego Permit and Model SUSMP. We have attached our January 24, 2008, letter to reiterate the legal problems that arise from such language (these concerns are also summarized in Section II below).

Since its inception, the MS4 permitting program has been seriously hampered by a pervasive absence of numeric performance standards for the implementation of BMPs such as LID. For this reason, in December 2007, the State Water Resources Control Board commissioned a report which found that "[t]he important concept across all of [the] approaches [described in the report] is that the regulations established a

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[1] California Ocean Protection Council, *Resolution of the California Ocean Protection Council Regarding Low Impact Development* (May 15, 2008). We have enclosed a CD that includes all of the documents referenced in our letter.

[2] Environmental Protection Agency, Comments re Draft MS4 Permit for Southern Orange County (email from Eugene Bromley) (Jan. 24, 2008) (hereinafter "EPA South OC Comments").

performance requirement to limit the volume of stormwater discharges."[3] The report also noted that "[m]unicipal permits have the standard of Maximum Extent Practicable (MEP) which lends itself more naturally to specifying and enforcing a level of compliance for low impact development."[4] EPA has highlighted similar but more specific concerns, remarking that subjective and imprecise language (such as requiring "a portion" of a site to address LID, as in the Permit at D.1(d)(4)) is "vague" and that EPA recommends "more precise requirements."[5]

Various jurisdictions nationwide have begun adopting numeric performance standards for stormwater management, frequently pairing these with requirements to implement LID practices:

- **Pennsylvania:** Capture at least the first two inches of rainfall from all impervious surfaces and retain onsite (through reuse, evaporation, transpiration, and/or infiltration) at least the first one inch of runoff;[6]

- **Anacostia, Washington, D.C.:** Retain onsite the first one inch of rainfall and provide water quality treatment for rainfall up to the two-year storm volume;[7]

- **West Virginia:** Retain onsite the first one inch of rainfall from a 24-hour storm preceded by 48 hours of no measurable precipitation;[8]

- **Georgia:** Treat the runoff from 85% of the storms that occur in an average year (*i.e.*, provide treatment for the runoff that results from a rainfall depth of 1.2 inches);[9]

- **Central Coast, California (RWQCB, Phase II):** Limit effective impervious area ("EIA") at development projects to no more than 5% of total project area (interim criteria); establish an EIA limitation between 3% and 10% in local stormwater management plans (permanent criteria);[10]

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[3] State Water Resources Control Board, *A Review of Low Impact Development Policies: Removing Institutional Barriers to Adoption* at 23 (Dec. 2007) (emphasis added) (hereinafter "SWRCB LID Report").
[4] *Id.* at 4.
[5] EPA South OC Comments.
[6] Pennsylvania Stormwater Best Management Practices Manual, Chapter 3 at 7 (Dec. 30, 2006).
[7] *See* SWRCB LID Report at 20-21.
[8] State of West Virginia, NPDES Permit No. WV0116025 at 13-14.
[9] Georgia Stormwater Management Manual, Unified Stormwater Sizing Criteria at 1.3-1.
[10] Central Coast Regional Water Quality Control Board, Letter from Roger Briggs re Notification to Traditional, Small MS4s on Process for Enrolling under the State's General NPDES Permit for Storm Water Discharges (Feb. 15, 2008) (hereinafter "Central Coast Phase II Letter").

- **All Federal Buildings over 5,000 square feet** (under EPA's draft guidance for implementation of the Energy Independence and Security Act of 2007): Manage onsite (*i.e.*, prevent the offsite discharge of) the 95th percentile storm through infiltration, harvesting, and/or evapotranspiration.

For the reasons outlined above, it is imperative that the Model SUSMP require new development and redevelopment projects to implement LID practices designed in accordance with a clear performance requirement. As detailed below, we recommend that the Model SUSMP include a standard which requires onsite retention, with no surface discharge, of the rainfall from the 85th percentile storm. This approach is not only consistent with practice nationally and in California, but Dr. Richard Horner demonstrated its practicability in the San Diego region in technical analyses prepared prior to adoption of the Permit in 2007 (all of which are part of the administrative record).

This critical element, lacking in the Permit, has not been sufficiently addressed in the Model SUSMP, as we believe the Executive Officer and the Regional Board intended. Such clear regulatory requirements must be included and must be consistent with MEP and related requirements, as well as the mainstream of stormwater control across the country. Indeed, the Permit's requirements for such vague actions as "drain[ing] a portion of impervious areas ... into pervious areas" and "minimiz[ing] the impervious footprint of the project" with no specific numeric performance requirement beyond the SUSMP treatment control sizing criteria are not adequate or consistent with standard practice in the field, nor do they implement the Permit's fundamental requirement—added at the adoption hearing—to ***maximize*** LID. (Permit at D.1(d)(8).)

Unfortunately, the Model SUSMP does not clearly and unambiguously set forth a performance standard for LID, therefore failing to cure the problem with the Permit and failing to comply with the Regional Board's expectation and direction in 2007. As it stands, the Model SUSMP merely outlines a process for choosing and designing LID features and describes the SUSMP treatment control sizing criteria that function as a minimum requirement for stormwater treatment in California. While meeting the minimum SUSMP criteria would be a seriously deficient performance standard because stormwater requirements have advanced significantly since the establishment of these criteria, the Model SUSMP nonetheless allows waivers of these minimum sizing criteria for nebulously defined demonstrations of infeasibility. Requiring that projects simply meet the minimum requirements of the State Board's nine-year-old Order WQ 2000-11, and then allowing waivers of these minimum requirements, is a far cry from *maximizing* the implementation of LID, especially given the numerous more recent and more stringent examples (listed above) from elsewhere in the country. Currently, the Permit and the Model SUSMP stand as examples of the approach that EPA and others have criticized as inadequate. (Permit at D.1(d)(4)-(6).) In order to comply with the State Board's prescription that "[t]he important concept across all of [the] approaches [studied by the State Board] is that the regulations established a *performance requirement* to

limit the volume of stormwater discharges," the changes described in Section III are required.[11]

II. The Permit and the Model SUSMP Are Inconsistent with the Clean Water Act Because They Collectively Do Not Set Forth Legally Adequate BMPs to Implement LID.

The lack of clarity and specific requirements noted above is not only inconsistent with state and national practice, and therefore fails to comply with the MEP requirement, but it also violates the Clean Water Act because the vagueness of the LID provisions prevents them from constituting legally adequate BMPs and from allowing the Regional Board to understand what actions are required by the Permit. NRDC has previously addressed these and related issues in comments in 2008 on the proposed MS4 permit for South Orange County. We attach for your reference these comments and incorporate them herein, since they apply with equal force to this issue. By way of summary, however, BMPs that do not require a reasonably clear and specific performance standard fail to meet the legal definition, and practical function, of a "Best Management Practice." Particularly where, as here, BMPs are intended to serve in part or whole as effluent limits, this vagueness is unlawful and deeply undercuts the effectiveness of the Permit. Among other things, neither staff nor the Regional Board members themselves can understand the level of water quality control required by the Permit and the Model SUSMP now, since neither document contains clear and reasonably specific requirements for LID implementation.

Twenty years after the first adoption of MS4 permits—with water quality problems associated with urban runoff still a serious problem in San Diego—it is far past time for staff or the Regional Board to essentially guess about what the Permit requires or what actions will be taken in order to comply with its terms. We respectfully submit that the edits set forth below are required to cure these key problems and bring the Permit into line with standard practice in the field and applicable legal requirements.

III. The Model SUSMP Can Be Easily Revised to Include the Necessary Numeric Performance Standard and Accompanying Alternative Compliance Requirements.

The Model SUSMP already contains a useful outline of the process of designing stormwater management BMPs to incorporate LID features—it simply needs to establish a clear numeric performance standard that will require the implementation of LID practices to the MEP standard and also allow for alternative compliance where onsite compliance is technically infeasible. The approach that we recommend is consistent with other stormwater management programs across the country, as discussed above. To clarify the primacy of LID implementation and to establish a robust performance

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[11] State Water Resources Control Board, *A Review of Low Impact Development Policies: Removing Institutional Barriers to Adoption* at 23 (Dec. 2007) (emphasis added).

standard, we recommend that the following text be inserted in Chapter 2 after the introductory section on page 14.

Design Standards for Priority Development Projects

To implement the general requirements of Permit Provision D.1.d, the Copermittees have developed the following design standards and alternative compliance criteria for Priority Development Projects. These requirements shall be implemented and constitute requirements of the Permit.

- ***Onsite Volumetric Retention Requirement:*** *All Priority Development Projects must be designed to retain onsite, with no runoff, the volume of water that results from a 24-hour 85th percentile storm event (the "onsite retention volume") as determined from the County of San Diego's 85th Percentile Precipitation Isopluvial Map (rainfall depths vary from 0.55" to 1.55").*

- ***Prioritization of LID:*** *In designing stormwater management BMPs to accommodate the onsite retention volume, project applicants must first utilize LID features to meet the onsite volumetric retention requirement. If the implementation of all technically feasible LID features does not allow a project to retain the full onsite retention volume, project applicants may utilize other stormwater management BMPs to retain the remaining required volume onsite.*

- ***Alternative Compliance and Offsite Mitigation:*** *If exceptional site constraints render compliance with the onsite volumetric retention requirement technically infeasible, project applicants must implement all technically feasible retention features and treat any remaining surface discharge (up to the onsite retention volume) through the practices outlined in this Model SUSMP. When a Copermittee allows a project applicant to exercise this alternative compliance option, the project applicant must either*

  (1) construct an offsite mitigation project or

  (2) provide sufficient funds to the Copermittee for a public project

  that will retain a volume of stormwater (the "offsite retention volume") equivalent to the portion of the onsite retention volume that was not retained onsite times 1.5.[12]

[12] We recommend a ratio of 1:1.5 for the offsite retention volume. This is consistent with the other stormwater regulations mentioned above and with numerous other environmental mitigation programs around the country.

- ***Timing of Offsite Mitigation Projects:*** *Projects addressing the offsite mitigation volume, whether performed by the project applicant or by the Copermittee after collecting in-lieu funds, must be constructed and fully operational within 36 months of the final discretionary approval of the applicant's project by the Copermittee. Funding sufficient to address the offsite mitigation volume must be transferred to the Copermittee (for public offsite mitigation projects) or to an escrow account (for private offsite mitigation projects) within one month of final discretionary approval by the Copermittee. In addition, a specific offsite mitigation project must be identified, and funding allocated to that project, within 18 months of final discretionary approval by the Copermittee.*

To clarify the applicability of this section, the Model SUSMP's section discussing "Waivers from Numeric Sizing Criteria" on page 12 should be revised to reflect the requirement that all projects receiving waivers can only receive a "waiver" from the onsite retention requirement (and thus the section should be renamed "Waivers from the Onsite Volumetric Retention Requirement"), must still treat all surface discharge up to the design volume, and must construct—or provide funds for the construction of—an offsite project that will mitigate the deleterious effects of allowing onsite non-compliance by the project. These recommendations should rectify the shortcomings of the Permit itself and make the Model SUSMP and its requirements consistent with the MEP standard and with stormwater regulations in other locations around the U.S.

IV. Conclusion.

We appreciate the opportunity to comment on the Model SUSMP and the Copermittees' willingness to involve us in this process. We strongly urge you to require the revisions that we have recommended above, as they are necessary to address the legal inadequacies of the Permit by establishing a clear, numeric performance standard that requires the implementation of LID and allows for alternative compliance in situations of technical infeasibility.

Please feel free to contact us with any questions.

Sincerely,

David Beckman
Bart Lounsbury
Natural Resources Defense Council

Gabriel Sohmer
San Diego Coastkeeper